

ABSTRACT

A method and apparatus are disclosed for locking the most recently accessed frames in a cache memory. The most recently accessed frames in a cache memory are likely to be accessed by a task again in the near future. The most recently used frames may be locked at the beginning of a task switch or interrupt to improve the performance of the cache. The list of most recently used frames is updated as a task executes and may be embodied, for example, as a list of frames addresses or a flag associated with each frame. The list of most recently used frames may be separately maintained for each task if multiple tasks may interrupt each other. An adaptive frame unlocking mechanism is also disclosed that automatically unlocks frames that may cause a significant performance degradation for a task. The adaptive frame unlocking mechanism monitors a number of times a task experiences a frame miss and unlocks a given frame if the number of frame misses exceeds a predefined threshold.

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